

A study of accountability in two organizational learning frameworks: why accountability for learning is critical

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Abstract

In this paper we examine the complex relationship between accountability and organizational learning through a case study with the UK Royal Air Force (RAF). Accountability is a complex and contradictory construct that has both positive and negative implications for organizational learning. Within the same organization we observed positive effects of accountability in one organizational learning system, and negative effects of accountability in another. This case study adds to the organizational learning and accountability literatures, showing that accountability to hierarchy, rather than preventing learning, can actually promote effective learning, making it more likely that people will report problems quickly and accurately and take follow-up action. This only applies if the learning objectives align with the broader accountability framework, and if reporting on failures will enhance individual reputation. If not, then people will tend to avoid reporting negative events in order to avoid punishment and reputation damage. Accountability to hierarchy is only negative if it conflicts with the learning objectives.

Keywords

Organizational Learning; Accountability; Repertory Grid; Public Sector; Defence; Royal Air Force

Introduction

The Nimrod Review was presented to the UK government in 2009 as “an independent review into the broader issues surrounding the loss of the RAF Nimrod MR2 aircraft XV230 in Afghanistan in 2006” (Haddon-Cave 2009, p1). As a result of this review, named individuals in the RAF are now held legally accountable for issues of air safety. Whilst proposing stronger accountability as a solution, the Nimrod Review discusses both the potential benefits of accountability as a component of an effective safety culture and the potential problems posed by accountability that might lead to failure to report on critical issues where accountability is to hierarchy instead of expertise. The relationship between learning and accountability is complex and requires further analysis.

Accountability is a prominent topic in the public sector, heralded as a key principle of democratic governance (Schillemans, Van Twist, and Vanhommerig 2013) intended to ensure that public money is used responsibly, and to prevent the abuse of power. Public sector agencies are subject to a very high degree of scrutiny and accountability (Rashman, Withers, and Hartley 2009), and measures to ensure accountability have significantly increased in recent years (Greiling and Halachmi 2013b). Accountability is almost universally held to be desirable. Critical issues remain contested, though, such as how best to achieve it (Roberts 2002) and even precisely what it means (Bovens 2010). Accountability is highly problematic in practice (Messner 2009) because it has “multiple and conflicting meanings” (Sinclair 1995, p219) and is characterised by contradiction (Joannides 2012). Amongst these contradictions, one of the puzzles of accountability is its popularity, “given an empirical track record that

documents how supposedly accountability-enhancing measures lead to gaming, cheating and slacking, and a decline in moral responsibility and/or intrinsic motivation” (Busuioc and Lodge 2016, p248).

The complexity that accountability presents also applies to Organizational Learning, where the expected effect of accountability is mixed. From a learning perspective “accountability is a tool to make governments effective in delivering on their promises” (Bovens, Schillemans, and Hart 2008, p225). Accountability is said to *enable* effective organizational learning, specifically when defined in terms of “commitment to corrective action” (Lipshitz, Popper, and Friedman 2002, p85). Learning is particularly important where it relates to safety, offering the opportunity to identify and prevent dangerous situations from occurring in the future (Provera, Montefusco, and Canato 2010). Without accountability, there is the risk of promoting an ‘anything goes’ culture. However, with accountability and punitive measures, there is an increased risk of people not reporting problems in order to avoid punishment (Jos and Tompkins 2004). If learning is suppressed that relates to safety, then the opportunity to prevent harm and even loss of life is missed. An intrinsic difficulty is that the organization should promote the surfacing and reporting of errors in a way that enables performance improvement. Accountability can promote effective learning, making it more likely that people will report problems and take follow up action, yet it can also prevent people from reporting negative events in order to avoid punishment and reputation damage. The challenge of managing this for organizational learning is therefore “an intricate business that must be handled with judgment and care” (Ron, Lipshitz, and Popper 2006, p1078).

In this paper we investigate this complex issue through a study of the impact of accountability on two systems intended to support organizational learning in the UK Royal Air Force (RAF). As a public sector agency, there are high expectations of accountability within the RAF. As an organization that operates aircraft in conflict situations, there is a clear and significant risk of loss of life to their pilots and aircrew, and to the wider public. Due to the significant risks and public status, the RAF represents a high-accountability work context (Vashdi et al. 2007). The two systems we examine are *Air Safety* and *Air Lessons*. The Air Safety Management Plan describes a detailed process to identify, assess, record and undertake actions to mitigate safety-related risks. The Air Lessons framework describes a learning process that should be applied to all projects, operations and exercises. Air Safety has been significantly influenced by The Nimrod Review (Haddon-Cave 2009), which ultimately led to the legal accountability of named individuals responsible for safety. For this reason, the accountability paradox (Jos and Tompkins 2004) might predict that Air Safety would be the least effective of the two systems. In fact, we find that the Air Safety system is perceived as being significantly more effective. It is applied in a rigorous, transparent way, seeking to identify causes of safety problems and to implement change. In contrast, the Air Lessons system was reported to suffer from a number of challenges: poor attention to detail, a lack of attention to operational failings, and a perceived lack of credibility. This paper presents an analysis of these two organisational learning systems in order to investigate the degree to which accountability explains the differences in perceived performance.

The next section presents a literature review that defines key elements of organizational learning and accountability, and analyses their relationship. This is followed by a description of the research method and results. The analysis section then discusses how the relationship between accountability and organizational learning has different outcomes in the two RAF systems, presenting a comparison and analysis based on the multifacet model of organizational learning (Lipshitz et al. 2002). Finally, we discuss the wider implications for practice.

Literature review: Organizational Learning and Accountability

This section will introduce the pertinent literature within the body of work on organizational learning, and introduce the multifacet model (Lipshitz et al. 2002).

Accountability is then discussed, and subsequently analysed in terms of organizational learning.

Organizational learning

Organizational learning, “the study of the learning processes of and within organizations” (Spender 2008, p160) is a critical contributor to competitive advantage (Stata 1989), survival (Lähteenmäki, Toivonen, and Mattila 2001), and firm performance (Jiménez-Jiménez and Sanz-Valle 2011). The imperative to become a learning organization (Prahalad and Hamel 1990) has been stressed for many years (Argyris 1977, 1993; Cangelosi and Dill 1965; Fiol and Lyles 1985; Garvin 1993; De Geus 1988; Senge 1990; Stata 1989; Sugarman 2001). However, despite the rapid growth in the popularity of ‘organizational learning’ as a subject (Bapuji and Crossan 2004), there has been little agreement amongst scholars on the definition of terms or mechanisms (Crossan, Lane, and White 1999; Friedman, Lipshitz, and Popper 2005; Huber 1991),

and several philosophical perspectives have been taken by researchers debating what it is, what it means, where it is situated and in what forms it can be identified (Crossan et al. 1999; Easterby-Smith 1997; Easterby-Smith, Crossan, and Nicolini 2000). For reviews of the literature, see, for example, Bapuji & Crossan (2004); Shipton (2006); Taylor et al. (2010) and Turner, Swart, & Maylor (2013). However, despite the wealth of research that has been undertaken on learning and knowledge-sharing, there is still much to be explored (Foss, Husted, and Michailova 2010; Gagné 2009; Gino and Staats 2015; Wang and Noe 2010).

The public sector context is important to recognise with regards to organizational learning. Although competitive advantage and firm performance are clearly sound targets in for-profit firms, public sector organizations typically have different objectives. Since organizational learning can provide “extensive analytical value... contributing to the improvement of the understanding of organizations and their activities” (Chiva and Alegre 2005, p49) it is very relevant for the public sector as a way to learn from past experiences and adapt to environmental change (Greiling and Halachmi 2013b). As such, organizational learning research in the public sector is both important and extensive (e.g. Addicott, McGivern, & Ferlie, 2006; Currie & Suhomlinova, 2006; Ferlie et al., 2009), although Rashman et al. (2009) argue that it is also lacking. The public sector context is also prominent within the accountability literature and this will be discussed shortly.

Research on organizational errors is also a rich and valuable area (e.g. Argyris, 1977, 1993). Goodman et al. (2011, p157) write that in this context “Learning refers to

the acquisition of new behaviors and can occur at the individual, unit or organizational levels.” They develop a multi-level model and differentiate between a ‘prevention’ approach and a ‘resilience’ approach. Putz, Schilling, Kluge, & Stangenberg (2013) look at forms of error detection, coping mechanisms and learning methods, including individual behaviours. They use this to develop a questionnaire to evaluate the organizational learning climate. However, the research to date does not address how one organization can have two systems with seemingly different levels of effectiveness.

Although there have been a wide range of valuable organizational learning models within the literature (e.g. Argote and Miron-Spektor 2011; Crossan, Lane, & White, 1999; Nonaka, 1994; Schilling & Kluge, 2009), we sought to use a model containing elements more closely aligned with the particular research context. The *multifacet model* (Lipshitz et al. 2002) describes the necessary conditions for productive organizational learning using five facets: contextual, policy, psychological, cultural and structural, and this is shown in Figure 1.

-----insert figure 1 about here-----

The structural facet contains organizational learning mechanisms (OLMs) (e.g. the safety systems we identified) that lead to productive learning. Lipshitz et al. (2002) defined this as producing ‘valid’ knowledge that leads to action. This aligns with the practical emphasis of the behavioural school within the literature (e.g. Chakravarthy 1982; Levitt & March 1988; Nelson & Winter 1982), and these twin criteria are important in our context. The cultural facet incorporates transparency, integrity, issue orientation (focusing on the relevance of the information), inquiry (persisting until full

understanding is obtained), and accountability. They argue that accountability for learning leads to finding out what went wrong in order to avoid errors in the future. The authors here use examples from the Israeli Air Force, strengthening the links with our research. Only the multifacet model explicitly includes accountability as a component of productive organizational learning. Here, accountability is defined as “assuming responsibility for both learning and implementing lessons learned” (Lipshitz et al. 2002, p86).

The psychological facet includes the issues of psychological safety (Edmondson 1999, 2008) in promoting a ‘safe’ environment with a lack of defensive routines (Argyris 1977). This is important in a safety-critical environment as fear of the consequences of speaking up may silence employees (Kish-Gephart et al. 2009), therefore hindering learning. Lipshitz et al. (2002) do also note that any inquiry that may expose failings or fault might induce defensive routines, and that *integrity* is key for people to proceed despite this threat. Similarly, Schwartz (2011) argues that neither rules nor incentives can ever fully resolve the issues that inevitably arise with human interaction, and posits that ‘practical wisdom’ – the moral will and moral skill to do the right thing - is required. These issues are included in the discussion of psychological safety as a required element of productive learning. This is interwoven with the idea of organizational commitment, whereby organizational members identify with the organization’s goals, and this is especially pertinent in a military context.

The policy facet acknowledges a tolerance for error (management’s major contribution to psychological safety), together with a commitment to learning, vital in situations

where lives are put at risk. The authors specifically cite Air Force after-action reviews as an example of this (see also Darling, Parry, & Moore, 2005). This is supported by a commitment to the workforce, understood as fairness and supporting employment security.

Finally, the contextual facet focuses on exogenous factors and contains a number of key aspects. Error criticality refers to the immediacy and seriousness of potential errors (of great significance in air safety), environmental uncertainty to the rate of change experienced (e.g. Maylor, Turner, & Murray-Webster, 2013); task structure to the feasibility of obtaining accurate information, and proximity to core mission to the closeness of the learning task to the organization's main function. Finally, committed leadership is identified as being central to the success of the endeavour in question. The elements of the Lipshitz et al. (2002) model appear to be highly relevant for the air safety context, and this is supported by the use of Air Force data by the authors.

Following a review of accountability, we demonstrate how this model was used in the analysis of our empirical data.

Accountability

Accountability is almost universally held to be desirable, and in part this reflects its apparently simplicity: accountable individuals must answer for their actions and be responsible for the consequences (Roberts 2002). As a key principle of democratic governance (Schillemans et al. 2013), measures to improve accountability have significantly increased in recent years (Greiling and Halachmi 2013b). However, “despite substantial expansion of the amount and scope of public accountability,

government responsiveness, efficiency, and effectiveness have not significantly improved” (Greiling and Halachmi 2013b, p380). At the same time, the quest for better accountability in the public sector is now stronger than ever (Greiling and Halachmi 2013a). So, whilst accountability appears simple in theory, there are a number of problems and conflicts that become apparent when accountability is operationalised (e.g. Lindkvist and Llewellyn, 2003). The nature of accountability is now presented, followed by four key difficulties.

Defining accountability

Here we present two models of accountability. The first is referred to here as *instrumental accountability*, which is “the obligation to explain and justify conduct” (Bovens 2007, p450); it is “to have to answer for one's actions or inaction... and to be responsible for their consequences” (Roberts 2002, p658); or “the power to demand answers and to apply sanctions” (McKernan 2012, p260). It is a formal relationship between an actor and a forum (Bovens 2007). The second model of accountability, referred to here as *relational accountability*, is the subject of much debate and is less succinctly defined. Relational accountability is a self-governing form of accountability driven by relationship: “ties of friendship, loyalty and reciprocal obligation” (Roberts 1991, p363). It is a “process of dialogue” (Roberts 2002, p660) that serves to develop shared understanding between the actor and the forum, and between actors. Relational accountability is frequently presented as a solution to the various problems of accountability, through relationships (Roberts 1991) and dialogue (Vosselman 2013) where accounts are given freely as testimony (McKernan 2012) enabling an intelligent

accountability (Roberts 2009) that does not reference external, formal and finite rules but “infinite justice” (McKernan and Kosmala 2007, p732). The instrumentalist (or the television interviewer) might argue that such relationship is not only unnecessary but also unethical, as close relationships might cause the failure of proper accountability. The relationalist could argue that accountability is inherently unethical and paradoxical, driving the need for such relationships to weave together the impossible demands of accountability with the practical concerns of professional practice and the personal concerns of ethics and responsibility.

Comparing instrumental accountability to a legal framework allows it to be contrasted with relational accountability as an example of the difference between law and justice. As such, instrumental and relational accountability are not distinct categories, but an “aporetic entanglement” (McKernan and Kosmala 2007, p739) within which both are needed, and each influences the other. Instrumental accountability defines the relationship and the expectations. A specific accountability relationship can be defined in terms of the forum, actor, conduct and obligation (Bovens 2007). The complexity and contradictions inherent in the lived experience of that accountability relationship can then be managed intelligently (Roberts 2009) through a process of dialogue.

Whilst a convincing theory with a clear need, relational accountability is nonetheless rather woolly. It is a complex construct that can only be fully understood in context, by insiders. This is unacceptable given that accountability is fundamentally about external scrutiny (Mulgan 2000a). Accountability is stringently applied in the

public sector, particularly with regard to policy (Mulgan 2000b). As such, the need for transparency and public scrutiny will always give instrumental accountability the upper hand when tough questions are raised.

Problems with accountability

Empirical studies of accountability have shown that it has both positive and negative effects (Mero et al. 2014). This finding is not unexpected, given the complexity that accountability presents. Here we discuss four unresolved problems with accountability in order to develop the link between accountability and organisational learning. The first problematic element of accountability occurs when the requirement to give an account disrupts practice itself. This is highly likely because a good deal of expert practice is applied automatically (Nightingale 2003) such as the intuitive making of decisions (Messner 2009). The need to give an account adds cognitive load in a similar way to narrating during a driving test, and therefore changes the task itself. As such, “accountability is the condition of becoming a subject who might be able to give an account” (Roberts 2009, p959). The demand for an account is considered to be unethical both because it disrupts practice and because it asks for an account of what is sometimes unconscious and unknowable. At the same time, “A manager who cannot explain why he has taken a certain decision... will not readily be called a responsible manager” (McKernan 2012, p260). In this reporting conundrum the requirement to give an account is always essential, and sometimes impossible.

A second problematic element of accountability is the complexity of work for public officials, who must work within “a web of multiple, overlapping accountability

relationships” (Roberts 2002, p658). Accountability for practicing managers encompasses multiple conflicting meanings (Sinclair 1995) that change with context. It is argued that “expecting that person to measure up to multiple and conflicting accountabilities is itself ethically questionable” (Messner 2009, p919). In this public complexity conundrum it is either not possible to demand a true accountability, or it is not ethical to demand a true and conflicting accountability.

The third issue regarding accountability is the moral conflict and apparent paradox presented by autonomy: “where people break with the duties authoritatively imposed on them by their role they seem, almost by definition, to behave irresponsibly, unaccountably. On the other hand there is an understanding that there can be no real personal responsibility or accountability in the absence of autonomy” (McKernan 2012, p260). Accountability for a mandated purpose removes personal responsibility for its effects. Behaviour that is in compliance is deemed acceptable, and so in following the rules “morality is reduced to well-understood self-interest” (Vosselman 2013, p10). This is contrasted with the problem of having the accountable individual define the purpose, thus becoming answerable only to themselves (Roberts 2002). In this moral conundrum we are either not personally responsible, or not accountable, and this tension is a key challenge when considering accountability to hierarchy.

The fourth problematic element of accountability is based on the desire to avoid punishment or loss of face. Punishment avoidance leads to selective reporting. The mechanisms used to promote and encourage accountability actually discourage the behaviours they are designed to ensure (Jos and Tompkins 2004). Instead of enhancing

performance, accountability measures often lead to gaming behaviours (Busuioc and Lodge 2016). In this punishment conundrum it is either not possible to get an accurate report on performance, or high performance standards are not shown to be required. Punishment avoidance is also a key issue for organisational learning as it may prevent openly reflecting on errors.

Recognising that accountability presents a highly complex background, the next section discusses how organisational learning is impacted by accountability. Two problematic accountability issues, punishment avoidance and hierarchy, will be further discussed.

Accountability and Organizational Learning

In the context of organizational learning, accountability includes a dual commitment to learn and to take corrective action (Lipshitz et al. 2002). This can be articulated as “We clearly understood that the incident and the implementation of changes was our responsibility” (Naot, Lipshitz, and Popper 2004, p460). Defined in this way, accountability contributes towards productive organizational learning (Taylor et al. 2010), and forms an essential part of a learning culture (Naot et al. 2004). Since errors are both inevitable and opportunities for learning (Ron et al. 2006), being accountable for personal failures means reporting on them in order to avoid reproducing them the next time a similar situations is encountered (Godé and Barbaroux 2012). Within an effective learning culture, some learning mechanisms are said to increase the sense of personal accountability (Vashdi et al. 2007), although psychological safety is required if this is to be effective.

The requirement to admit mistakes relates to a key problem of accountability, which can hinder organizational learning (Ebrahim 2005). The avoidance of punishment is the basis of the view that accountability has a negative impact on learning (e.g. Bapuji 2004). A punitive approach in which reporting on failures leads to punishment “is inconsistent with a non-evaluative and safe atmosphere that promotes learning” (Ron et al. 2006, p1078). This may be caused in part by *defensive bolstering*: the desire to avoid blame (Morris and Moore 2000). A positive and encouraging culture would enable “an open, free, non-punitive environment in which people can feel safe to report adverse events and near misses” (Catino and Patriotta 2013, p442). A tolerance for failure is frequently presented as a required policy for successful organizational learning (Agazzini, Pammolli, and Riccaboni 2012; Taylor et al. 2010), with the primary objective to learn in order to adapt and improve (Lukic, Margaryan, and Littlejohn 2010). However, the solution of a *no-blame approach* to encourage and enable learning from errors (Provera et al. 2010) is not a clear-cut, simple choice. In the safety domain in particular, there is a fine line between encouraging learning and promoting an anything-goes environment in which mistakes need not be avoided in the first place (Ron et al. 2006). Whilst this is clearly a worthy aim, very few organizations successfully manage this tension (Williams 2008).

Hierarchy is also a critical factor influencing learning, as identified in a series of experiments showing that learning is inhibited by accountability to organizational superiors (Morris and Moore 2000). Intricately related to hierarchy, leadership has also been shown to be the single most important factor influencing the quality of organizational learning (Naot et al. 2004), including their receptiveness to ideas,

impartiality, personal accountability and not blaming others. This is intrinsic to the multifacet model shown in Figure 1 (Lipshitz et al., 2002).

Punishment avoidance and allegiance to hierarchy share some common characteristics, since it is within the organisational hierarchy that punishment is enacted. These factors are critical within a public sector setting, and more so in a military setting where a strong sense of hierarchy is a required feature.

Literature summary

It is clear that organizational learning is beneficial, and the case for learning is particularly strong where safety is concerned. If problems, errors or near misses are identified, they can be elevated to a level where corrective action can be taken to prevent them. Effective organisational learning requires a safe atmosphere where reporting does not lead to punishment (Ron et al. 2006), since a punitive framework can hinder organizational learning (Bapuji 2004). There is a balance to be struck between encouraging people to report problems freely and encouraging responsible behaviour, and the proposed solution in the literature is to focus accountability on learning rather than on reporting (Ebrahim 2005; Greiling and Halachmi 2013b).

The practical observation that prompted this study was that two organisational learning systems appeared to perform very differently. The nature of accountability in each system will be investigated as a potential cause of this difference, with particular reference to hierarchy and punishment avoidance. The research question is: *To what extent does accountability explain the difference in perceived performance of the two organizational learning frameworks 'Air Safety' and 'Air Lessons'?*

Organizational Context: the case study organization

The stated mission of the Royal Air Force (RAF) is to: “Produce a battle-winning agile air force: fit for the challenges of today; ready for the tasks of tomorrow; capable of building for the future; working within Defence to achieve shared purpose” (RAF, 2016).

Collaboration, learning and adaptation are all key components of this mission. As a public sector body responsible for the lives of its pilots, aircrew, all of its 43,000 regular and reserve personnel as well as the air defence of the United Kingdom, the RAF clearly represents a high-accountability work context (Vashdi et al. 2007). As an organization required to engage in war, conflict situations and anti-terrorism, learning in order to achieve competitive advantage is a matter of life and death.

The two organizational learning frameworks we examine are *Air Safety* and *Air Lessons*. The Air Safety Management Plan describes a detailed process to identify, assess, record and undertake action to mitigate risks across the entire organization. Air Safety is managed tactically at station level by dedicated personnel, and strategic control is held by the Military Aviation Authority. The Air Lessons Directive emphasises the importance of organizational learning as a key component of competitive advantage. It describes a cyclical learning process of capture, learn, analyse and exploit that should be applied to all projects, operations and exercises. The Air Lessons framework is part of the wider Ministry of Defence lessons management process. This framework is less prescriptive at the unit level, and analysis of captured lessons is carried out centrally.

Air Safety has been significantly influenced by The Nimrod Review (Haddon-Cave 2009), and Base Commanders are now legally accountable for safety failures. The

accountability paradox suggests that punitive action and blame reduce the likelihood that individuals will report problems. This would predict that Air Safety would be the least effective of the two systems. However, this did not align with the operational experience of one of the authors, a squadron leader with responsibilities including air base operations. The Air Safety framework includes scheduled training and experience-sharing. The methods of reporting, briefing and oversight bring about positive operational change. There is a tangible culture of openness, and a definite sense of prioritisation and urgency. The Air Lessons framework, which has no such legal punitive framework, appears to be significantly less effective. It does not receive the same level of resource or attention, and the supporting IT system is perceived by some personnel as being difficult to use.

These differences raised the question of why one system appeared to operate much more effectively than another given the potential issues related to accountability. A further puzzle is the expectation that the positive learning culture within the organization should apply to both systems. This research sought to identify the different perceptions held by users of both systems in order to examine the impact of accountability. The following section outlines the research method adopted in this study.

Method

This research sought to investigate the question: *To what extent does accountability explain the difference in perceived performance of the two organizational learning frameworks 'Air Safety' and 'Air Lessons'?* in one air base in the RAF. Because we were seeking to identify the impact of accountability, a recognised and meaningful term

within the RAF, there was a risk of leading the participants if accountability was discussed directly. The Repertory Grid Technique (Kelly 1955), a well-established non-directive interview method, was applied to discover personal perspectives on the experience of both systems. The Repertory Grid Technique (RGT) allows people to express their views in their own terms, minimising the impact of the researcher's assumptions and bias on the result. RGT is based on the theory that individual actions are determined by understandings and perceptions of situations, and that those understandings can be accurately identified (Easterby-Smith, Thorpe, and Holman 1996). RGT is particularly suitable in exploratory settings (Goffin 2002), and although this research has a defined theoretical focus, the complexity and contradictions relating to accountability mean an exploratory approach is suitable.

The repertory grid interview includes three essential constituents: elements, constructs and linking mechanisms (Easterby-Smith et al. 1996). Elements are the objects of thought; the subject of study. In this study, elements were provided that relate to key components of the two systems, designed to reflect terms that are recognisable for the interviewees. The terms were intended to be representative of the everyday experience, but generic enough to allow a wide ranging comparison. Accountability was not a provided element, as this research sought to discover the extent to which accountability impacts on the two learning frameworks. Instead, we looked at relevant aspects of IT systems which the literature identified as important. This is a broad subject, and it is accepted that adopting such systems is complex and relies on a number of factors (e.g. Brown et al., 2014; Deng and Chi, 2012; Stein et al., 2015). We classified key ideas into five major themes.

Usability relates to the overall user experience with the system: is it easy to access, add content, and search? This is a functional technological issue relating to the usability of the IT system (Burke, 2013; Prat et al., 2015; Saadé and Bahli, 2005; Schilling and Kluge 2009; Venkatesh, 2000; Venkatesh et al., 2016). Systems perceived as not being easy to use are unlikely to deliver the benefits anticipated, so this is a key factor to ascertain. *Content Quality* relates to the perceived inherent quality of the existing information within each system, chosen because content quality is critical to learning (Haas and Hansen 2007; Moges et al., 2016; Nelson et al., 2005; Yen et al., 2015). *Training* refers to the availability of and experience with formal training for each system, as a critical feature of organizational learning (Camps and Luna-Arocas 2012; Davis and Davis, 1990; Gallivan et al., 2005; Lorenzo et al., 2009; Sharma and Yetton, 2007; Sykes, 2015). *Importance* relates to the perception of each system in broad terms – how important is it; what level of priority does it have within the work context? (Drnevich & Croson, 2013; Liang et al., 2015; Liang, 2015; Polites & Karahanna, 2013; Yen et al., 2015). This element provides opportunity for a detailed comparison of two important systems. Finally, *Assurance* refers to the practices of assuring content quality and managing risks associated with the use, processing and storage of information in the two systems. Assurance is an enabling factor for effective learning (Greiling and Halachmi, 2013b; Park et al., 2015; Spears et al., 2013; Zheng et al., 2013).

The provided elements representing the experience of using the two learning frameworks were:

1. Air Safety Usability

2. Air Safety Content Quality
3. Air Safety Training
4. Air Safety Importance
5. Air Safety Assurance
6. Air Lessons Usability
7. Air Lessons Content Quality
8. Air Lessons Training
9. Air Lessons Importance
10. Air Lessons Assurance

The interview process was carried out according to the recommended method (Easterby-Smith et al. 1996), ensuring that we can faithfully reflect the personal construct system (Kelly 1955) of each participant. The ten elements shown above were written onto ten cards. Participants were provided with a randomly selected set of three cards (a triad), and asked the following question: “can you tell me how two of these are similar, and different from the third”. This allows (and requires) the participant to respond in their own terms about how the elements are related, a key mechanism of discovering their personal construct system. For each triad, the interviewer sought to identify a *construct* and a *counterpole* by reflecting back to the interviewee and asking for clarification until a clear construct and counterpole was articulated. As an example of the output, the first construct provided by Participant A was ‘Self-Guided’ and counterpole was ‘Taught’. This referred to the lack of formal training available for the Air Lessons system. The second construct provided by Participant A was ‘Jargon Heavy’, with the counterpole ‘Clearly Articulated’. This referred to the differences in style in the

content of the reports. Additional comments were recorded during the interview process to add depth to the findings and clarify any ambiguous constructs, with the aim of supporting the coding process (see Koners & Goffin 2007). The interview process is then repeated with a new triad, continuing until no new constructs can be elicited.

An initial pool of 21 subjects was selected, based on recommendations from previous research (Goffin 1994; Jankowicz 2001). Participants were managers of deployable aviation units, currently or recently (within the last 12 months) closely involved in both the Air Lessons and Air Safety Management frameworks in a professional capacity. In advance of the repertory grid interview, participants were asked some background questions, including the number of years' service in the RAF and their level of experience and frequency of interaction with both systems. Two trial interviews were conducted to test the suitability and clarity of the interview process. The interviewees were typical of the research subjects in profession and experience. The interview process was found to be suitable and remained unchanged with the exception of the refinement of the example given by the interviewer to illustrate the repertory grid process. The data from the pilot interviews were incorporated into the final results.

Results

A total of 15 interviews took place. The interview duration ranged from 47 to 125 minutes with a mean of 79 minutes. Service length of the subjects ranged from 12 to 43 years with a mean service length of 18.5 years. All subjects were managers involved in the delivery of operations, exercises and projects, and all had a managerial responsibility for Air Safety. Some preliminary questions were used for each participant.

All subjects described themselves as currently responsible for utilising both the Air Safety Management and the Air Lessons systems. Frequency of interaction ranged from daily to monthly with the majority using the Air Safety system more frequently than the Air Lessons system. The level of comfort/familiarity with each system was also rated on a 5-point scale (1 = low, 5=high). The range of comfort/familiarity with the Air Safety framework was between 3 and 5, with a mean of 3.9. The range for the Air Lessons framework was 2 to 4, with a mean of 3.1. All subjects reported higher comfort and familiarity with Air Safety than Air Lessons.

After the first ten interviews were completed, clear trends were emerging with the constructs elicited from the interview subjects falling into broad themes. No obvious new themes emerged between the 10th and 15th interview as which point the interview process was terminated as thematic/data saturation had been reached, indicating an adequate sample size (Eisenhardt 1989; O'Reilly and Parker 2013). In total, 119 construct pairs were obtained. The number of constructs elicited from each interview ranged from 5 to 13, with a mean of 7.9.

An overview of the scores assigned to the ten provided elements is shown in Table 1. The interview protocol requires the participant to select their preferred construct pole, which is assigned the score 5. For example, the construct 'Good Awareness' has the counterpole 'Poor Awareness'. In this case the preferred pole is 'Good Awareness', which is assigned the score of 5. 'Poor Awareness' is assigned a score of 1. A high aggregate score therefore indicates that the element fares better in the eyes of the participant; it is 'preferred'. Using this method, the 'most preferred' elements can

be identified. It is notable from the results that the top 5 scoring elements are all from the Air Safety framework, and that the bottom 5 scoring elements are all from the Air Lessons framework. This validates the initial suggestion that Air Safety is the more effective of the two learning frameworks.

-----Insert Table 1 about here-----

A thematic analysis of the constructs was carried out using the Facets of Organizational Learning (FOL) model (Lipshitz et al. 2002) as a coding template. This model (Figure 1) was shown to be appropriate to use in this particular context. Each construct pair was evaluated and compared to the title and definition of each of the FOL categories. Reference was made to the additional descriptive text captured alongside each construct pair. A summary of the results is shown in Table 2.

-----Insert Table 2 about here-----

As shown in Table 2, the most frequently occurring category was Commitment to Learning. This category was very broad, including references to resources, training, promotion and importance. The second most frequently referenced category was Organizational Learning Mechanisms (OLMs), which includes references made to the organizational learning systems, their usability and design, structure, uniformity and terminology. The third most frequently referenced category was accountability, which will subsequently be discussed in more detail. Fourth was Committed Leadership, including references to the culture of learning (as promoted by leaders), senior management focus and attention, and the presence of local champions. Fifth, and with only four constructs, is Proximity to Core Mission. This included references to the

importance of the learning systems, and the relationship between learning and performance. Environmental uncertainty (here relating to the stability of internal processes) and psychological safety (relating the presence of a blame culture) each had two included constructs. A number of categories had a single construct: task structure, tolerance for error, organizational commitment, and inquiry. Surprisingly, several of the categories from the FOL model had no associated constructs: error criticality, commitment to the workforce, transparency, integrity, and issue orientation. In the safety domain, error criticality would appear to be an important issue. However, this was not specifically identified as a relevant feature according to the personal construct systems of the participants. It is possible, though, that it is so engrained in daily operations that it is implicit in the respondents' other answers. Commitment to the workforce was covered to some degree by psychological safety and tolerance for error, both relating to the presence of a blame culture. Content assigned to the 'other' category was rather wide ranging and (as expected within the repertory grid method) somewhat idiosyncratic, although one emerging theme related to the degree of direct relevance to the user, including e.g. relevant/not relevant; theoretical/practical; benefit apparent / not apparent; target understood / lack of clear goals.

Discussion

The literature review identified that accountability is a key component of effective organizational learning. This was confirmed by a non-directed (i.e. we did not ask about accountability) repertory grid study of two organizational learning systems in the RAF, where 17 constructs (14% of 119) were identified as relating to accountability. Several of these constructs specifically mention accountability: *'High accountability'* (Participant

B), *'Clear individual accountability'* (Participant D), *'Owners held to account'* (Participant F), *'Promotes accountability'* (Participant G), *'Good accountability'* (Participant H) and *'Personal accountability'* (Participant N). Some were related to accountability through the additional comments, for example the construct *'Carried out thoroughly'* was described with the comment "Named individuals ensure Air Safety Management is done" (Participant A). Other constructs were indirectly related to accountability, for example the construct *'Confidence in process'* was followed up with "Who gets in trouble for not submitting Air Lessons?" (Participant D). Accountability relates "Named individuals" and "Legal responsibility" through formal methods such as signatures, inspections, enforcement and audit.

Participants felt that when individual accountability is clearly defined, then those named individuals are much more likely to ensure that work gets done on time to a good standard. This is related to motivation: "People are motivated if they have something at stake". Without accountability, it was suggested that staff would pay "lip service" (Participant M) rather than fully engage with the learning system. Motivation was primarily discussed with relation to hierarchy, which includes formal inspections and audits and respect for the chain of command. If a senior officer will later ask whether a named individual followed up on a specific action, then it is much more likely that it will be done: "Formal assurance audits in the Air Safety Management framework means that processes are adhered to, which drives best practice" (Participant O). This situation is viewed positively: "Time bounded, targeted and monitored actions for named individuals is massively effective" (Participant M). In contrast, it was felt that the Air Lessons system was less effective because managers did not always follow up on the

reports: “Air Safety Management reports are not closed until actions have been incorporated. Air Lessons recommendations are locked in a drawer” (Participant A).

Air Safety was seen to receive significant leadership attention: “The CO [Commanding Officer] spends 5% of his week analysing safety lessons and ensuring they are acted upon” (Participant K). Visible leadership attention appears to be a critical factor, since senior officers “...lead from the top. Managers have the biggest influence in what they do not what they say” (Participant F). Accountability to hierarchy appears to drive performance, but it is reported in the literature as a key factor that can inhibit learning (Morris and Moore 2000). Closely related, punishment avoidance is a key component of the accountability paradox (Jos and Tompkins 2004). Some participants reflected on the impact of accountability to hierarchy: “A personal letter detailing you as liable from your boss's boss focuses the mind but it can also cripple an individual's tolerance of risk” (Participant M). In this case, having a clear and defined obligation and penalty for not acting means that action is much more likely to be carried out, but the sense of risk might change *how* it is carried out. Being held to account is expected to change how individuals act (Roberts 2009). The contrasting situation, where there is “No penalty for poor Air Lessons utilisation” (Participant N) leads to a lower attention, commitment and usage rate. The punishment conundrum does appear to apply to these differences, but not in the way we expected. Based on the literature, we predicted that punishment avoidance would reduce the likelihood of accurate reporting on anything other than high achievement. The Air Safety framework sets high standards for reporting and action, and does apply penalties, and yet both reports and subsequent actions are carried out in accordance with best practice. In contrast, an expectation of

high performance on operations appears to influence the nature of the reporting within the Air Lessons framework, which is not carried out to the same high standards.

The moral conundrum means that accountability to organisational superiors either removes true individual choice, or that people define their own purpose and thus are not truly accountable. Carrying out the mandated purpose may be a free choice driven by personal integrity, but also serves the individual's reputation. Within the Air Safety framework, the moral issue was raised: "Are people doing things to keep from getting in trouble or for the genuine good of the service?" (Participant H). Reputation has been presented as an explanatory factor behind both the continued popularity of accountability, and the individual behaviours that occur within an accountability framework (Busuioc and Lodge 2016). Reporting on human failings aligned with the mandated purpose for the Air Safety framework, and so it enhanced individual reputation. Reporting on failures went against the mandated purpose for operations, and so it diminished individual reputation. This apparent negative effect is illustrated by the following quote: "It is perceived as a positive character trait to admit human factor failings. It is not a positive thing to fail to deliver operational output" (Participant E). Contribution to the Air Safety system is recognised as valuable in itself, even where it references human error. In contrast, reporting on a failed exercise is not primarily seen as a valuable learning opportunity, and a negative report reflects badly on the accountable individual. When reporting on errors or failures, the question of "Does it benefit the user's status at work?" (Participant G) is answered differently for each system. As a result, reporting is different: "PXR [Air Lessons reports] are less honest

than Safety reports as performing well on exercise is considered as important as being open in Safety matters in enhancing reputation” (Participant K).

Through our comparison of two learning frameworks, we found that the ability to enhance individual reputation aligns with the learning goal in one system but not in the other. The formal directives and chain of command explicitly drive *accountability for learning* (Ebrahim 2005; Greiling and Halachmi 2013b) in the Air Safety framework, where reporting on safety failures helps to enhance the reputation of the individual reporting the problem. In contrast, reporting on operational failures in the Air Lessons system damages the reputation of the officer accountable for the operation. The Air Safety framework therefore illustrates how accountability to hierarchy can enable learning, if the learning objectives align with the objectives of the senior leaders. Following the Nimrod review, a new mandate to improve safety was introduced to the RAF by the UK government, alongside an accountability framework that required named individuals to be held personally and legally accountable for any safety failure that could have been prevented by following proper process. This punitive framework had the potential to prevent reporting and learning due to punishment avoidance behaviours. The actual result was an effective implementation of an active safety culture that is dedicated to reporting problems and errors, and to correcting them. In contrast, the Air Lessons framework is inhibited by individual accountability for operational performance rather than accountability for learning. The challenge for the Air Lessons framework is to change the view of reporting operational failures from a negative to a positive act, and a key element seems to be the cultural (unofficial) negative reputational effect of reporting errors.

This paper is necessarily limited by the sample size of the respondents and the single location used for the study. However, we believe this to be a valuable study which enhances our understanding of both accountability and organizational learning. The majority of empirical work on accountability has been carried out in laboratory settings (Mero et al. 2014), which limits the potential for discovering the complex web of interconnecting and conflicting accountabilities that work (Roberts 2009), and especially public sector work (Roberts 2002), entails. Our contribution has been to discuss in some detail the reasons why accountability can influence two organisational learning systems in the same organization in different ways. Accountability has a significant impact on organisational learning, but previous discussions do not sufficiently account for its complexity. In particular, it was not clear that multiple learning cultures could exist within a single organization. Accountability is defined as a relationship (Bovens 2007) rather than as a single organizational construct, and this has important implications for organisational learning. This finding provides some important avenues for further research.

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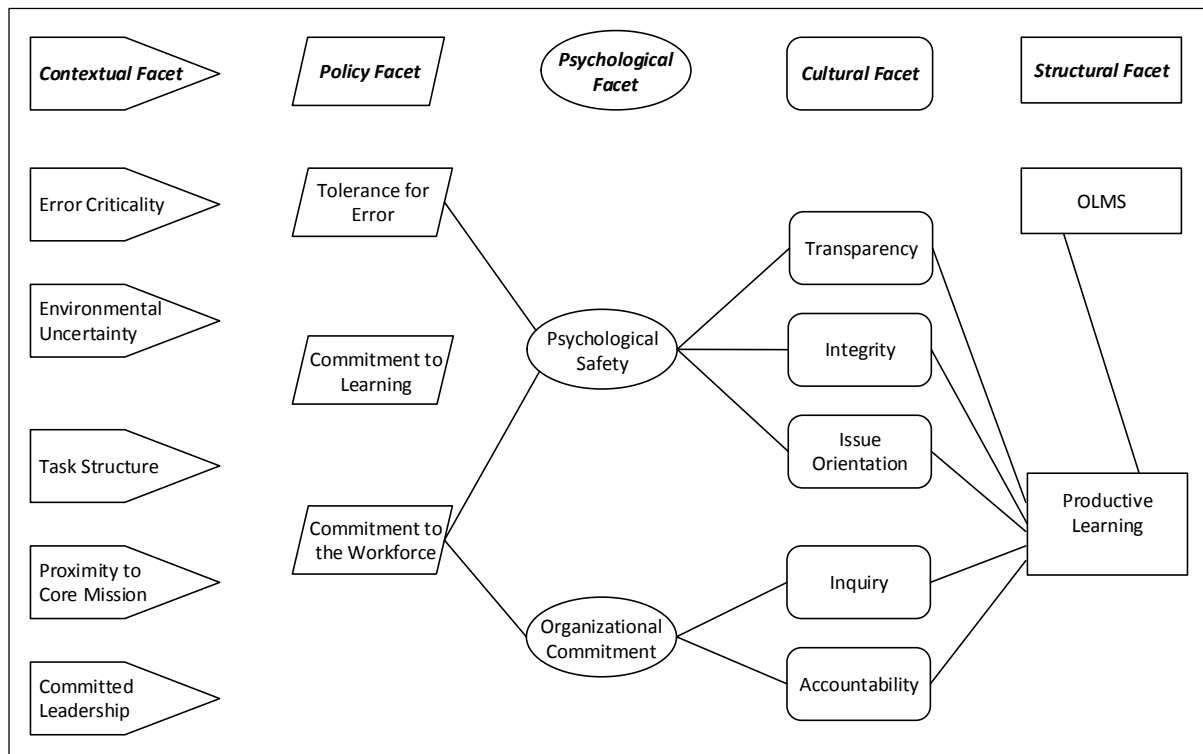


Figure 1: Facets of Organizational Learning (Lipshitz et al. 2002)

Table 1: Aggregate element scores

	Air Safety					Air Lessons				
	Importance	Assurance	Training	Content Quality	Usability	Importance	Content Quality	Usability	Assurance	Training
Sum of Construct Scores	493	458	450	437	403	349	334	295	281	257
Rank	1	2	3	4	5	6	7	8	9	10

Table 2: Summary of the coding process

Subject code	Definition	Count	As a %
Error criticality	Immediacy and seriousness of the consequences of errors	0	0%
Environmental uncertainty	Rate of change and intensity of competition	2	2%
Task structure	Working methods	1	1%
Proximity to core mission	Learning relates to the core mission	4	3%
Committed leadership	Leadership commitment and support for learning	11	9%
Tolerance for error	Balancing sanctioning errors in the service of learning with accountability	1	1%
Commitment to Learning	Strategy and action that learning is essential	43	36%
Commitment to the workforce	Learning will not be punished - errors in the service of learning are valued	0	0%
Psychological safety	People feel safe to make errors and honestly discuss them	2	2%
Organizational commitment	People identify with the goals and values and seek to achieve them	0	0%
Transparency	Exposing thoughts and actions to feedback	0	0%
Integrity	Providing information regardless of the implications	0	0%
Issue orientation	Relevance of the information, not rank	0	0%
Inquiry	Persisting until full understanding is achieved	1	1%
Accountability	Responsibility for learning and implementing lessons	17	14%
OLMs	Organizational subsystems in which members interact for the purpose of learning	23	19%
Other	Not matching these definitions	14	12%